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APPLICATION NO	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO	CONFIRMATION NO
09/808,317	03/14/2001	Naoyuki Ueda	09792909-4791	3727

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EXAMINER

CLOVE, THELMA S

ART UNIT	PAPER NUMBER
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2879

DATE MAILED 10/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/808,317

Applicant(s)

UEDA ET AL.

Examiner

Thelma S Clove

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) 1-3,5 and 7-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 1-3,5 and 7-16 is/are allowed.
- 6) ☐ Claim(s) 17-21,23 and 24 is/are rejected.
- 7) ☐ Claim(s) 22 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 17-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Mental (US 4617195).
3. Regarding claim 17, Mental teaches a light-emitting device comprising an inorganic layer including an emission region provided between an anode and a cathode, wherein the anode has a light transmittance of 60% or greater (in column 4 lines 1-7 and 24-25).
4. Regarding claim 18, Mental does not specify the range of the radiation emitted. However, the light emitting device is for a lamp. Therefore, it is inherent that the radiation emitted would be within the visible spectrum, or within the range 380-780 nm.
5. Regarding claims 19 and 20, Mental teaches the anode comprising nickel oxide (in column 4 lines 4-6).
6. Claim 24 is rejected under 35 U.S.C. 102(b) as being anticipated by Nakayama et al. (JP 405343183).
7. Regarding claim 24, Nakayama teaches a light emitting device comprising an emission layer an anode and a cathode, wherein the anode comprises a layer of ITO and a 20 nm layer of titanium oxide (in the abstract).
8. Although Nakayama does not specifically disclose the transmittance for visible light (according to claims 1 and 17) in the wavelength range 380-780 nm (according to claims 2 and

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18), this feature is seen to be an inherent characteristic of the anode of Nakayama, since it has the same structure as the anode taught by the Applicant.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 17 and 19-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakayama (JP 405343183) in view of Mental (US 4617195).

11. Regarding claim 17, Nakayama teaches a light emitting device comprising an emission region between an anode and a cathode wherein the anode has the same structure as that taught by Applicant. The anode will inherently have a transmittance between 35 and 75%, as applied to 24 above (in the abstract).

12. Nakayama does not teach the anode used with an inorganic emissive layer.

13. Mental teaches an anode having a transmittance 60% or greater with an inorganic emissive region (in column 4 lines 1-25).

14. Mental teaches the anode made of similar materials to that of Nakayama and teaches that this anode can be used with organic or inorganic emissive materials (in column 4 lines 1-25).

15. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use an inorganic emissive material with the light emitting anode of Nakayama because the anode of Nakayama can be used with either organic or inorganic materials as taught by Mental.

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16 Regarding claims 19-20, Nakayama teaches the anode comprising titanium oxide (in the abstract).

17 Regarding claim 21, Nakayama teaches the anode having plural layers (in the abstract).

18 Regarding claim 23, Nakayama teaches titanium dioxide the metal oxide layer of the anode, one of the suitable materials taught by Applicant in the specification. Therefore, it is assumed that titanium dioxide has a work function between 3-7 eV.

Allowable Subject Matter

19. Claim 22 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

20. The following is a statement of reasons for the indication of allowable subject matter: Regarding claim 22, the prior art of record neither shows nor suggests a light emitting device having an inorganic emissive material and an anode that has a transmittance of 35-75%, and comprises a plurality of layers including one of the claimed metals and a dopant, in combination with the other limitations of claim 22.

21 The closest art is Nakayama, which teaches a titanium dioxide and ITO anode. However, Nakayama does not teach the titanium dioxide layer being doped.

22. Applicant teaches that the dopant improves the physical and chemical characteristics of the double anode layer.

23. Claims 1-3, 5, 7-16 are allowed.

24. The following is an examiner's statement of reasons for allowance: Regarding claim 1, the prior art neither shows nor suggests a light emitting device comprising an emissive layer between an anode and a cathode, wherein the anode has a transmittance of 35-75% and

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comprises two layers, one having a metal selected from Ni, Ru, Ir, Rh, Pt, Pd, Re, Zr, Nb, Mo, and W and another layer selected from the group consisting of zinc, indium, and tin.

25. The closest art is Pichler (WO 9810473), which teaches a light emitting device comprising an anode having two layers, one of ITO and one as a thin layer of Ni, Pt, Pd, Ru, or Re (on page 15 third paragraph). However, Pichler does not teach the transmittance of the anode.

26. Applicant teaches that by choosing the thickness of the layers to give a transmittance of between 35 and 75%, produces a device with improved contrast and luminous efficiency by allowing an improvement in the energy matching of the hole injection material and the anode material.

27. Regarding claim 14, the prior art of record neither shows nor suggests a two layer anode according to claim 1, wherein the anode is doped with $RxNiO$, $RxWO_3$, $TiNb_xO_y$, where R is (H, Li, Na, K, Rb, Cs, Cu, Ag, or Au). The closest art is Pichler et al. (WO 9810473), as applied to claim 13 above, which teaches the anode doped with silver or gold. However, Pichler does not teach the silver or gold in the composition of a nickel of tungsten oxide.

28. The Applicant teaches that by using a dopant comprising at least one of $RxNiO$, $RxWO_3$, $TiNb_xO_y$, where R is (H, Li, Na, K, Rb, Cs, Cu, Ag, or Au), the physical and chemical characteristics of the anode are improved.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

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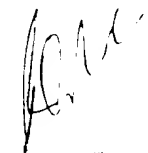
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thelma S Clove whose telephone number is (703) 308-6548. The examiner can normally be reached on Monday-Friday from 8 to 4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar D Patel can be reached on (703) 305-4794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7382 for regular communications and (703) 308-7382 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.



TSC
October 17, 2002



NIMESHKUMAR D. PATEL
SUPERVISORY PATENT EXAMINER
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